Low Impact Development

NRCS Natural Resources Conservation Service

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What is Low Impact Development?

Historically, Iowa rainwater stayed where it fell, soaking into healthy prairie soils to replenish groundwater. Today, rainwater is often sent into storm sewers where it is flushed into our streams and rivers along with pollution from roads, parking lots, or yards. As we add more roofs, pavement, and compacted turf to our communities, it is more important than ever to help rainwater infiltrate – to minimize flooding and protect water quality.

There is a changing trend in land development and storm water management throughout the United States. It has been called many things, including smart growth, conservation development and low impact development (LID).

LID is an alternative, ecologically-sensitive design approach that mimics the way natural areas store and infiltrate rainwater. The LID approach protects local and regional water quality by decentralizing storm water management and absorbing rainfall throughout the landscape.

In typical urban settings, soils are heavily compacted from the development process. Land is also covered with impervious surfaces, such as roofs, streets and sidewalks. Consequently, land is unable to absorb storm water. Instead, storm water is collected and conveyed as quickly and efficiently as possible. This process delivers urban pollutants such as sediment, hydrocarbons, metals, bacteria and fertilizers to streams, rivers, and lakes.

Low impact development minimizes the amount of impervious surfaces and mitigates the impact of necessary impervious surfaces. There are a variety of conservation practices that work together to mitigate these effects, such as pervious paving, rain gardens, bioretention cells, bioswales, native landscaping and soil quality restoration.

A bioretention cell manages runoff from the imperviousness of a commercial parking lot. A bioretention cell is a low impact development practice because it allows rainwater to infiltrate, minimizes flooding and protects water quality.

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Key Principles of LID

Environmental protection

Natural features, such as wetlands, woodlands, and stream buffers are protected. By preserving these features, natural drainage patterns can be identified and used as green infrastructure, biodiversity is retained and wildlife habitat is protected.

Storm water management

Rather than flowing off site, water is directed to infiltration-based storm water management practices and absorbed on site. Keeping water on site reduces pollutant loads, moderates peak stream flow rates and volume, and enhances base flows.

Community character

In residential settings, homes typically open up to open space and feature recreational trails. Native landscaping provides aesthetic value, adequate storm water conveyance, distribution of water flow, and filtration of pollutants.

Benefits of Low Impact Development

to residents:

- increases community character
- improves quality of life
- more access to trails and open space
- pedestrian-friendly

to developers:

- reduces land clearing and grading costs
- reduces infrastructure costs (streets, curbs, gutters, sidewalks)
- increases lot values and community marketability

to communities:

- balances growth needs with environmental protection
- reduces infrastructure and utility maintenance costs

to the environment:

- protects environmentally-sensitive areas
- increases wildlife habitat by preserving trees and vegetation
- protects water quality by reduciong pollutant loads
- reduces stream bank and channel erosion by reducing peak flows and moderating the frequent bounce associated with lower intensity storms
- reduces flooding potential

Modular paver blocks serve as a paving alternative in this commercial parking lot in West Des Moines, Iowa. Pervious paving is a low impact development practice that allows rainwater to infiltrate, minimizes runoff and flooding, replenishes groundwater, and protects water quality.

More Information about Low Impact Development

Find additional information about LID by visiting the following websites:

www.lowimpactdevelopment.org
www.iowastormwater.org
www.iowasudas.org
www.cwp.org
www.stormwatercenter.net